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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,516	12/12/2003	Brian Ruggiero	34090-06297	9084
25243	7590	02/21/2006		
COLLIER SHANNON SCOTT, PLLC 3050 K STREET, NW SUITE 400 WASHINGTON, DC 20007			EXAMINER ESHETE, ZELALEM	
			ART UNIT 3748	PAPER NUMBER

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/733,516

Applicant(s)

RUGGIERO, BRIAN

Examiner

Zelalem Eshete

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 November 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-7,9-18,20-23 and 28-31 is/are pending in the application.
- 4a) Of the above claim(s) 9-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,20-23 and 28-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

This Office Action is in response to the amendment filed on 11/15/2005.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,3-7,20-22,29,31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egan, III et al. (6,112,710) in view of Meneely et al. (6,386,160).

Regarding claims 1,31: Egan discloses a system for actuating two engine valves each having an axial center spaced a first distance from each other (see figure 3), said system comprising: housing (see numeral 31) having a first slave piston bore (see numeral 34), a second slave piston bore (see numeral 34), and a passage adapted to provide hydraulic fluid to the first and second slave piston bores (see numeral 33; column 6, lines 47 to 50); a first slave piston slidably disposed in the first slave piston bore and a second slave piston slidably disposed in the second slave piston bore (see figure 3), said first and second slave pistons each having an axial center spaced a second distance from each other (see figure 3), a master piston operatively connected

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to the housing passage (see numeral 32); and a hydraulic fluid control valve operatively connected to the housing passage (see numeral 35).

Egan fails to disclose a valve bridge disposed between the first and second slave pistons and the two engine valves; wherein the first distance is different than the second distance.

However, Meneely teaches a valve bridge disposed between the first and second slave pistons and the two engine valves; wherein the first distance is different than the second distance (see figures 1,10). Meneely also teaches apparatus which is rugged and economical in construction and reliable during operation (see column 1, lines 64 to 67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Egan's device by providing a valve bridge arrangement as taught by Meneely in order to achieve rugged, economical apparatus that is also reliable during operation as taught by Meneely.

Regarding claim 3: Egan discloses a valve seating device disposed in the housing passage (see figure 2).

Regarding claim 4: Egan discloses the valve seating device comprises a hydraulic fluid opening adapted to provide hydraulic communication between the housing passage and the first and second slave piston bores (see figure 2, numerals

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231,25,243,23,21 and means for selectively occluding the hydraulic fluid opening (see numerals 24,231).

Regarding claim 5: Egan discloses the valve seating device is disposed substantially directly above the first slave piston (see figure 2).

Regarding claim 6: Meneely discloses the second slave piston has a greater mass than the first slave piston; in that the two pistons are not identical as shown in the figure (see figure 10).

Regarding claim 7: Egan discloses at least one slave piston is solid throughout (see figure 3).

Regarding claim 7: Meneely discloses at least one slave piston is solid throughout (see figures 1,10).

Regarding claim 20: Meneely discloses the first and second slave pistons are disposed above the valve bridge at central locations relative to the locations at which the valve bridge contacts the first and second engine valves (see figure 1).

Regarding claim 21: Meneely discloses the valve actuation system is a variable valve actuation system (see abstract).

Regarding claim 22: Egan discloses the valve actuation system that is capable of fixed timing valve actuation system (see figure 3).

Regarding claim 29: Meneely discloses the first distance is greater than the second distance (see figure 10).

3. Claims 7,28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egan, III et al. (6,112,710) in view of Meneely et al. (6,386,160) as applied to claim 3 above; and and further in view of Vorih (6,412,457).

Egan as modified above discloses the claimed invention as recited above; and further shows at least one slave piston is solid throughout in the figure (see figure 3).

Egan fails to specifically disclose at least one slave piston is solid throughout by giving 3D or sectioned figures; and the seating device is integrated into the first slave piston.

However, Vorih teaches that it is conventional in the art to utilize at least one piston is solid throughout (see figure 21; column 13, lines 10,11); the valve seating device is integrated into the piston (see figure 10, numerals 260, 261).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Egan by providing the arrangement as taught by Vorih in order to simplify manufacturing assembly through integration of parts.

4. Claims 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Egan, III et al. (6,112,710) in view of Cosma et al. (5,619,965) and further in view of Vanderpoel (6,474,277).

Egan discloses the claimed invention as recited above; and furthermore discloses imparting a linear motion to the master piston (see figure 3; numeral 32); imparting a linear motion to the two or more slave pistons responsive to the master piston motion (see numeral 34); actuating the two or more engine valves responsive to the motion of the two or more slave pistons (see figure 3).

Egan fails to disclose seating the two or more engine valves by throttling hydraulic fluid flow past a single point located between the two or more slave pistons and the master piston thereby hydraulically opposing the linear motion of the two or more slave pistons as the engine valves approach valve seats.

However, Cosma teaches that it is conventional in the art to utilize seating the two or more engine valves by hydraulically opposing the linear motion of the two or more slave pistons as the engine valves approach valve seats by rapidly opening and closing the valve (see figure 1; column 5, lines 61 to column 6, line 3).

Furthermore, Vanderpoel teaches throttling as a means of valve seat control (see column 9, lines 60 to 65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Egan by providing valve seat control system

as taught by Cosma in order to reduce chatter at the closing of the valve. It also would have been obvious to adapt throttling as taught by Vanderpoel in order to prolong the operation life of the system by avoiding the need to rapidly open and close the valve.

5. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Egan, III et al. (6,112,710) in view of Meneely et al. (6,386,160) as applied to claim 1 above; and further in view of Hausknecht (4,153,016).

Egan as modified above discloses the claimed invention as recited above; however, fails to disclose the master piston is oriented substantially perpendicular to the first and second slave pistons.

However, Hausknecht teaches the perpendicular arrangement of the two pistons to accommodate the position of the input device (see figure 5, numerals 153,136).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Egan as modified above by providing perpendicular arrangement as taught by Hausknecht in order to accommodate the position of a horizontal input device as taught by Hausknecht.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1,23,31 have been considered but are moot in view of the new ground(s) of rejection.



***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

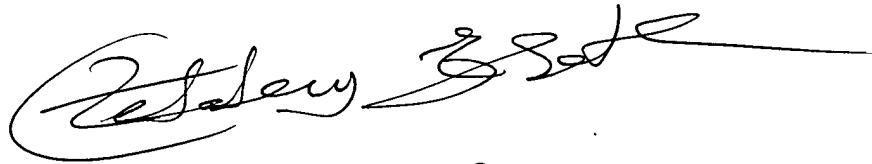
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zelalem Eshete whose telephone number is (571) 272-4860. The examiner can normally be reached on Monday to Thursday.

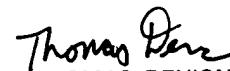
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zelalem Eshete  
Examiner  
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A large, stylized handwritten signature in black ink, likely belonging to Zelalem Eshete, the examiner mentioned in the text above.

  
THOMAS DENION  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700